



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,101	01/22/2002	Steven G. Goebel	8540G-000096	9631

27572 7590 10/16/2003

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 10/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/055,101

Applicant(s)

GOEBEL ET AL.

Examiner

Raymond Alejandro

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 3,8-11 and 13-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-7 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 22 September 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 4. 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species 1 and sub-Species B (claims 1-2, 4, 5-7 and 12) in Paper No. 6 and also during a telephonic conversation between the examiner and applicant's representative, Linda Deschere, on 09/30/03 is acknowledged. The traversal is on the ground(s) that "no undue burden is placed upon examination of the other claims 13-27". This is not found persuasive because it is noted that as admitted by the applicant and disclosed in the specification, a first embodiment includes a fuel cell processing system without a fuel cell while the second embodiment comprises a fuel cell processing system including a fuel cell, and sub-embodiments according to Figures 1-4. Thus, the disclosure encompasses several different and separated embodiments, which are mutually exclusive. Accordingly, serious burden would be raised if the search of both different methods was made as required for the separate and distinct inventions.

The requirement is still deemed proper and is therefore made **FINAL**.

2. The examiner also telephoned and contacted applicant's representative, Linda Deschere, on 09/30/03 because the reply to the election of species was found to be incomplete as the reply did not meet the requirement of including a reasonable and adequate listing of the specific claims readable on the elected species. As mentioned, it was further determined that claims 8-9 and 11 were not embraced by the elected species 1 and sub-Species B. Accordingly, claims 8-9 and 11 were withdrawn from further consideration as they are directed to distinct species and, thus, to a non-elected invention. Applicant's representative further agreed to withdraw from consideration the foregoing claims.

Information Disclosure Statement

3. The information disclosure statements (IDS) submitted on 01/22/02 (paper # 2) and 06/10/03 (paper # 4) were considered by the examiner.

Drawings

4. The sheets of drawings filed on 01/22/02 have been accepted. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.
5. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 09/22/03 has been accepted. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claim Objections

6. Claim 1 is objected to because of the following informalities: the language “a fuel processor having an fuel processor inlet” should be changed to “a fuel processor having a fuel processor inlet”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1745

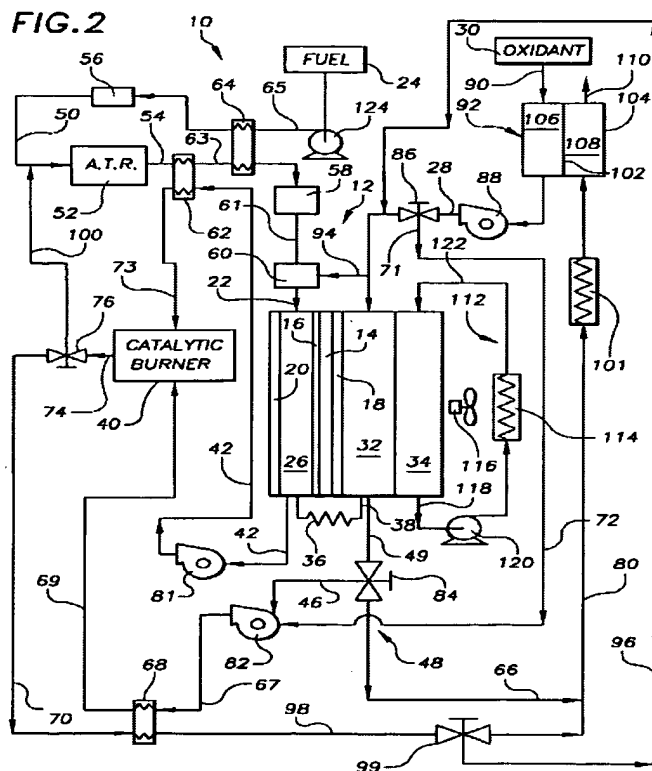
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-2, 4 and 5-7 rejected under 35 U.S.C. 102(e) as being anticipated by Van Dine et al 6331366.

The present application is directed to a fuel processing system wherein the disclosed inventive concept comprises the specific recirculation loop therein. Other limitations include the bypass passage; the exhaust valve; the recirculation valve; the recirculation pump; and the condenser.

As to claim 1:

Van Dine et al's **Figure 2** below illustrates a schematic representation of a fuel cell power plant showing split passages of the system:



Art Unit: 1745

In particular, **Figure 2** depicts a reformer 52 comprising an inlet and outlet; a burner 40 having an inlet and an outlet. The burner inlet is in fluid communication with the fuel processor outlet via extension lines 63 and 61, the anode exhaust passage 42 and extension line 73.

A recirculation loop including a valve 76 for selectively providing fluid communication between the fuel processor inlet and at least the combustor outlet is also illustrated.

As to claim 2:

A bypass passage providing fluid communication between the recirculation loop and the combustor inlet is illustrated by the passage including extensions 70 and 98, the diversion line 96, the exhaust passage 49, and the extension 69.

As to claim 4:

Any of valve 99, valve 86 or valve 84 selectively provides fluid communication between the recirculation loop and the combustor inlet.

As to claim 5:

Van Dine et al teach that all extension passages and their respective valve are operable to set a recirculation ratio (COL 14, lines 34 to Col 15, line 15).

As to claim 6:

Any of valve 74, valve 99, valve 86 or valve 84 is able to control fluid communication in the recirculation loop.

As to claim 7:

Fluid compression means 81 and 82 are in fluid communication with the recirculation loop.

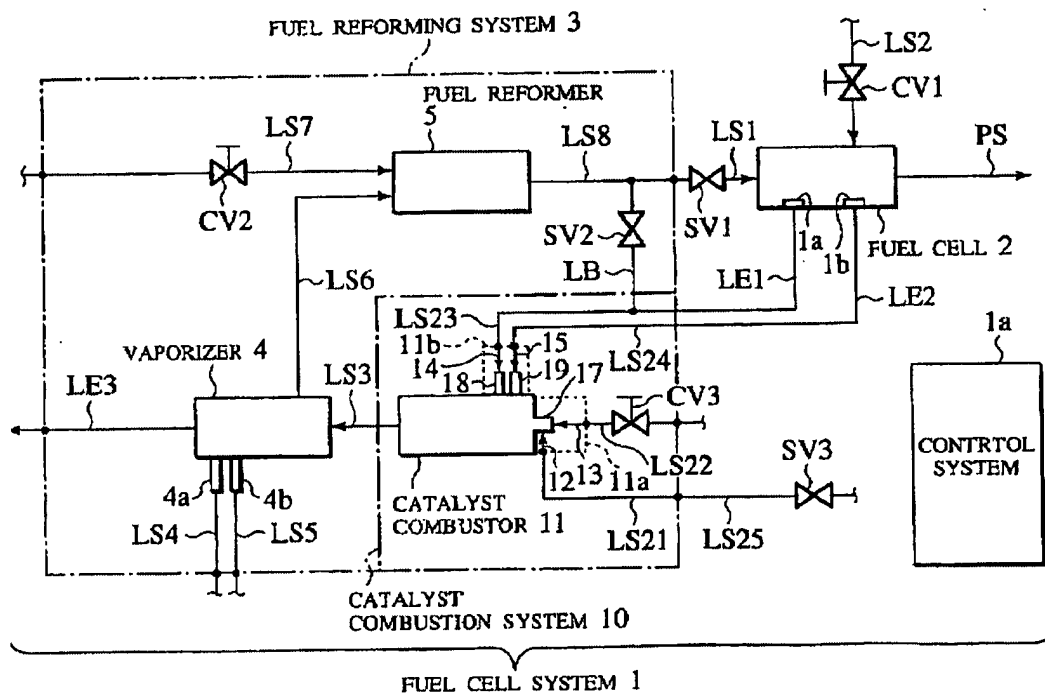
Thus, the claims are anticipated.

Art Unit: 1745

9. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Kobayashi 2001/0018141.

Kobayashi in **Figure 1** below depicts a block diagram of a fuel cell system including a reforming system 5 having a combustion system 11 wherein the combustor inlet is in fluid communication with the reformer outlet via the reformed fuel supply line LS1 and the reformed fuel bypass line LB that has shutoff valves SV1 and SV2 and ; the combustor supply line LS3 is also in fluid communication with the reformer inlet. Valves SV1 and SV2 selectively provides fluid communication between the recirculation loop and the combustor inlet, and they are both operable together for setting the required fluid flow therein (SECTIONS 0023-0032).

FIG.1



Thus, the claims are anticipated.

Art Unit: 1745

10. Claims 1-2 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Ilo et al 2003/0027024.

Ilo et al teach a reformer 4 and a combustor 1 wherein both the reformer and the combustor include inlet and outlet. It is disclosed that the combustor 1 generates heat by reacting gas containing hydrogen supplied from the anode effluent recirculation passage 8 through a discharge valve 60 and reformat gas generated by the steam reformer 4 with oxygen contained in the cathode effluent supplied through the pressure control valve 41 (SECTION 0028). As shown in **Figure 1** below, the recirculation loop includes a valve selectively providing fluid communication between the reformer inlet and the fuel processor outlet and the combustor outlet. The fuel processing system further includes a recirculation pump 9 in fluid communication therewith.

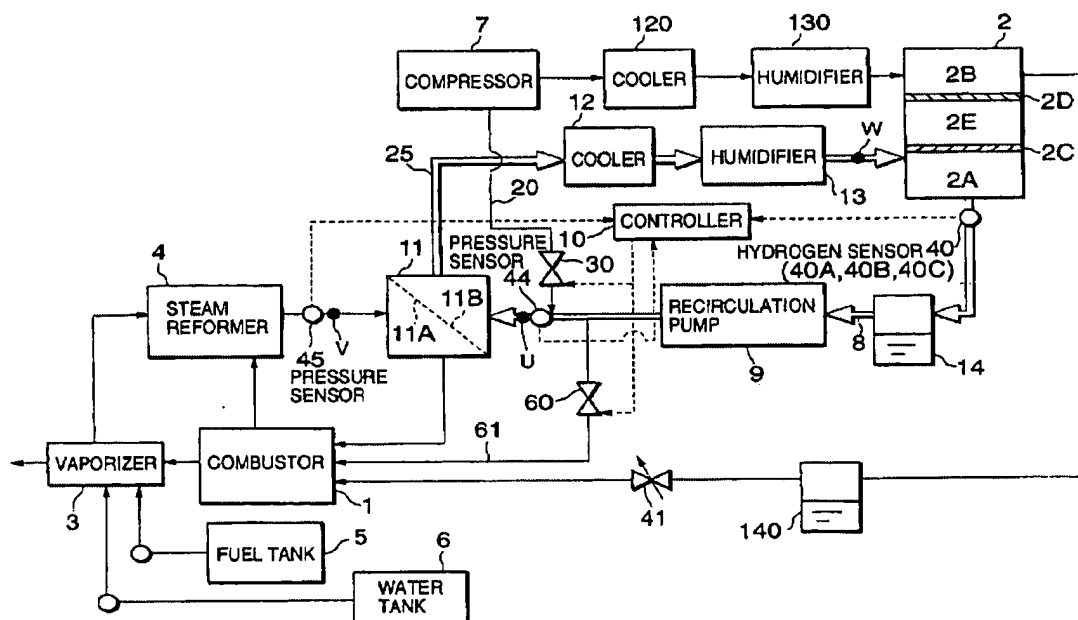


FIG. 1

Thus, the claims are anticipated.

Art Unit: 1745

11. Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by Hart-Predmore et al 6436561.

Hart-Predmore et al disclose a fuel processing apparatus comprising a fuel processor 2 and combustor 34, both of them including respective inlets and outlets; wherein the entire output of the fuel processor 2 is recirculated to the combustor 34 as fuel through a fuel bypass valve 201 which supplies the fuel processor output gas stream to a second inlet on the combustor 34 (COL 11, lines 45-65).

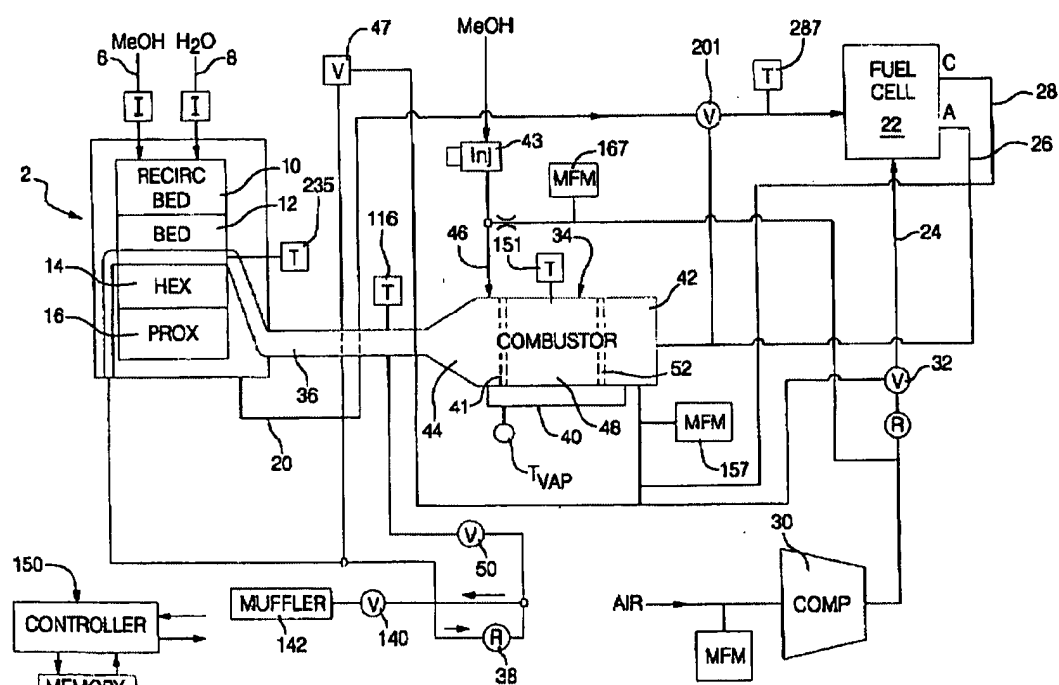


FIG. 1

Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

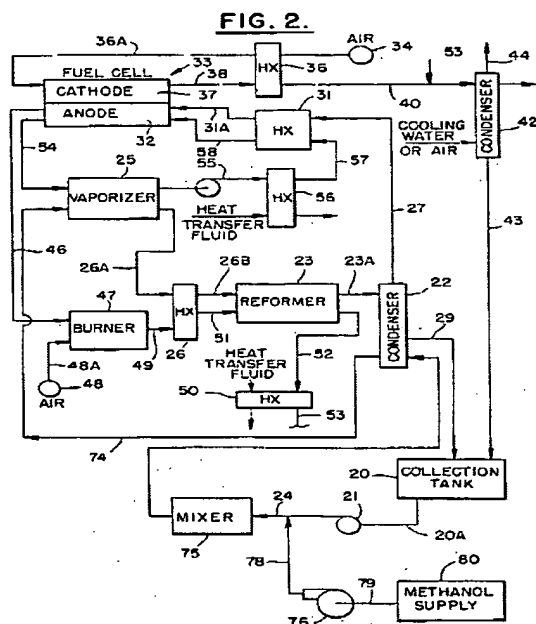
14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Dine et al 6331366 or Kobayashi 2001/0018141 or Ilo et al 2003/0027024 or Hart-Predmore et al 6436561 as applied to claim 1 above, and further in view of Beshty et al 4670359.

Van Dine et al'366 or Kobayashi'141 or Ilo et al'024 or Hart-Predmore et al'561 are applied, argued and incorporated herein for the reasons above. *It is noted that each of the foregoing references is being applied as a single primary reference per se in view of secondary reference Beshty et al'359. Thus, each reference stands alone and is further combined with Beshty et al'359 to reject claim 12.*

However, none of the foregoing references disclose the condenser in fluid communication with the fuel processor outlet.

Art Unit: 1745

Beshty et al illustrate in **Figure 2** below gas stream exiting reformer 23 passing through line 23A and into condenser 22 where the gas stream is cooled to a lower temperature within a preferred working temperature to condense much of its water content by heat exchange with the as yet unreformed water/methanol feedstock being circulated therethrough (COL 6, lines 20-28).



In view of the above, it would have been obvious to one skilled in the art at the time the invention was to use the condenser in fluid communication with the fuel processor outlet of Beshty et al in any of the fuel processor of either Van Dine et al'366 or Kobayashi'141 or Ilo et al'024 or Hart-Predmore et al'561 because Beshty et al teach that the gas stream exiting reformer is feed into the condenser where the gas stream is cooled to a lower temperature within a preferred working temperature to condense much of its water content by heat exchange with the as yet unreformed water/methanol feedstock being circulated therethrough. Thus, the condenser is employed to condense water of gas stream.

Art Unit: 1745

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
Art Unit 1745

A handwritten signature in black ink, appearing to read 'RAM', with a long horizontal line extending to the right.